

Chapter XVI

DIFFERENT KINDS OF METHOD

IN books about teaching you will often find reference to different *kinds* of method:

Analytic and Synthetic Method.

Inductive and Deductive Method.

Heuristic Method.

Dialectic Method.

Direct, or 'Telling' Method.

Socratic Method.

And you may wonder which is best. As a matter of fact we not only want them all, but are constantly using them all, sometimes in the same lesson

539. *Analysis and Synthesis* simply mean pulling to pieces and putting together again. They are natural processes and soon begin in the mental life of every child. We have said (219) that children first classify objects by likenesses. They do that because they do not at first notice parts but only wholes. When they begin to notice parts they begin to see differences and then have to reclassify. Attending to parts is analytic; classifying is synthetic.

540. Analysis has a charm for a child. He always wants to see the inside of things. His curiosity is boundless. It leads him to investigate, so he breaks up his toys; not out of naughtiness, for he loves them, but because he has an analytical mind. And you will often see a little child trying to put his toy together again. He soon gives up

PSYCHOLOGY APPLIED TO MUSIC TEACHING

the attempt and throws the toy away, having a limited notion of commercial values; but give him a toy that is meant to be taken to pieces and put together again, and it has a lasting interest for him. A boy never tires of 'Meccano' because of its endless possibilities.

541. So the analysis of their tunes has an interest for young pupils. They like to see 'how they are made up,' as they express it, and by and by they discover, through analysis, that *a piece is never as long as it looks* (because of repetitions), and this they consider a very satisfactory state of things.

542. We use analysis and synthesis in teaching because they belong to the mind's way of learning. Sometimes we begin with analysis, sometimes with synthesis; it depends on the nature of the subject and the pupil's stage in the study of that subject. The elements of music are so closely intertwined that the child's mind cannot disentangle them (366-7). The teacher has to break up the whole into its parts and to present the parts separately for assimilation; and then the pupil is helped to put them together again in easy reading exercises. So the early teaching of music and its notation involves an analysis on the teacher's part, a synthesis on the part of the pupil.

543. A little later, when we come to pieces—even very simple ones—the pupils analyse, with our help; and later still we expect them to do it themselves in their preparation of pieces, such preparation showing in itself a growing power of independent interpretation.

544. Reading music at sight is a synthetic process. Note-groups succeed each other very rapidly, and must be rapidly 'joined up' mentally if we would seize their meaning. In reading music, as in reading a book, there must be a quick 'synthetic glance of eye and mind.'

545. In *Inductive Method* the pupils are helped to find a general rule, or law, by noticing what happens in a great many particular cases.

546. In *Deductive Method* they are given the rule and are expected to apply it to particular cases. For example, there are several ways of teaching scales:—

(a) The old-fashioned memory-method. We were *told* how many sharps and flats were in each key-signature—we were not told why they were there—and we had to remember which was which. A slippery kind of information which had a trick of disappearing when wanted. Children taught in that way were always playing hide-and-seek with the key-signatures, but a child with a good memory could pass an examination in key-signatures without even knowing what a scale *is*. No thinking music teacher uses that method now.

(b) Another way is to give the pupil the rule about the places of the semitones, and require him to apply that rule to all keys. That is Deductive Method. It is the quickest way to arrive at scale formation and key-signatures, and quite a good way. But it is not the best way.

(c) The child has the scale-tune in his mind. We set him to experiment with it at the key-

board and to find out under what conditions that little tune 'comes right.' He can only do this by listening. By comparison with the modulator he finds that everything depends on the 'little steps' being in the right places, and he adjusts the keyboard accordingly. This is Inductive Method. But there is a further step. The rule has to be applied, else it is of no use to him. So now he starts from *any* place on the keyboard, observes the rule of the semitones, and finds that in all cases it works. Here we have Deductive Method following Inductive, and verifying it.

547. You see, then, that induction works from the particular to the general, and deduction from the general to the particular again. A rule is not of real use to us unless we can apply it.

548. This (c) is a slower way, and you may ask: 'If we have eventually to work by the rule, whether it is given or discovered, and if economy of time is important in teaching, why use the slower method?' Because, though economy of time is important, mind-training is more so.

'A rule that has been worked for leaves behind it an effect upon the character of the person who works. . . . The mind is a better mind because it has done this particular bit of work.'—*Adams*.

549. *Heuristic Method* is the method of investigation, experiment and discovery. Maxim 11 ('Teacher's Guide') puts it in this form: *Never tell a pupil anything that you can help him to discover for himself*. The name comes from the same root as that Greek word which is quite commonly

used, but without much inquiry as to its origin: *Heureka!* which means 'I have found it!' It was the exclamation of Archimedes, when, after puzzling over a problem for a long time, he at last hit upon its solution.

550. Heurism is inductive, but it differs from ordinary inductive method in this respect: A teacher may give a lesson inductively by working out a problem on the board in the presence of the class, the pupils following his induction step by step and seeing how the conclusion is reached. But the secret of real Heuristic teaching, and its charm for the pupil, lies in the more direct exercise of the pupil's own mental activity. '*I have found it—I, myself.*'

551. Heuristic Method is the method of the scientist, and applies in all its fullness to the teaching of the natural sciences; but there are few subjects in which we cannot use it to a greater or less degree, and it is of the utmost value in training the judgment. Scientific method can be employed in other matters besides science properly so called, and in very simple matters too. There is no word oftener on a child's lips than the word *why*. If children's *whys* can be answered at all—and that depends on whether they have the necessary apperceptive ideas—they are better answered by setting them to answer them themselves. When in his early music lessons a child finds out with the teacher's help *why* some sounds are high and others low, *why* keeping down the pedal makes the music sound fuzzy, *why* some chords are bright and others sad though they look the same

on the keyboard, we are using scientific method. We do not discourse to him about vibrations, or about major and minor thirds, but let him get hold of initial ideas, skeleton notions that will be filled out in due time as his experience grows.

552. The critics of Heuristic method argue that it is absurd to put a mere learner in the attitude of an original discoverer. But that is not precisely what the Heuristic teacher proposes to do. The child is the heir of all the ages, and his heritage is lying all around him. All that we ask is that he shall gather up as much of it as he can with his own hands. The maxim tells us that we are to *help him* to discover.

553. In music teaching and other things, discovery depends in the first instance on observation. The observation is guided by the teacher, and laws and reasons for happenings are discovered by the pupil in proportion to his ability to put two and two together. The scale lesson (c) above is heuristic, because the pupil himself is the investigator.

554. Some children will detect an underlying principle after a very few examples—in fact, their tendency is to generalize too soon (223); others will work many exercises before they perceive any resemblance in the workings and the results. Certain things have to be told in teaching—technical terms, for instance, cannot be discovered—but so much of the interest of a lesson depends on the exercise of the pupil's own activity that the teacher, in preparing a lesson, should always keep the possibilities of heuristic treatment in

view. It is just a matter of 'manipulating' the pupil's ideas (275), keeping in touch with his thought.

'The teacher first thinks the steps to be taken by the pupil, and then he so adjusts the external means of teaching that the pupil actually takes such steps.'—*Welton*.

555. *Dialectic Method* explains itself. I have already warned the teacher not to give way to the temptation and do all the talking, but to induce the pupil to do his share. Dialectic Method is Conversational method. It helps us to get at the pupil's ideas, and being invited to talk compels the lazy-minded pupil to do a little thinking.

556. *Direct or 'Telling' Method*. Some people maintain that 'telling is not teaching,' and try to elicit everything from the pupil. If we know the content of the pupil's mind we can, and must, elicit a good deal, if only for the purpose of setting his ideas in order for the reception of what we are about to present. But it is obviously impossible to elicit what is not there, and we have to put a good deal in before we can draw it out again. Telling may be teaching, or it may not. The telling method is instructing by the use of language, and it is obvious that if the teacher uses words which call up no corresponding images or ideas in the pupil's mind the telling will not be teaching. But it is possible, by the judicious use of words, not only to call up ideas of familiar things, but to show new relations between them; and we may so work upon the pupil's imagination that out of his mental images of known objects he may construct images of things outside his

experience. When language does this, then telling is teaching.

557. In teaching the minor arts, embroidery, basket work, etc., direct *telling* is invariably used. The pupil is told what to do, and why; obeys, imitates, and learns by doing. In teaching the technique of an instrument, too, the direct method is the best, direction and example being backed by good reasons. In the one case success is gauged by the eye; in the other by the ear.

558. I think that teachers sometimes confuse the processes of eliciting and discovery. It would not be possible to elicit from a young pupil the rule for the agreement of the adjective in French, but it would be quite possible for him to discover it. The Heuristic principle does not forbid telling. 'A child should be told *as little as possible* and induced to discover *as much as possible*.' So wrote Herbert Spencer, and the most advanced Heurist does not demand the impossible. As to what *may* be elicited, when *can* be discovered, and what *must* be told, the teacher must be guided by knowledge of her pupil and by common sense.

559. *Socratic Method* in teaching has no reference to the belief that what we learnt in a previous state of existence is hidden away somewhere in our souls, and might be found if we hunted for it, so that all knowledge could be elicited from the pupil.

560. Socratic Method is the questioning method by which Socrates endeavoured to make people think more deeply and more clearly. He always went for the cocksure people, and by pretending to be ignorant and asking for information he made

them look into their own minds and sort out their own ideas more carefully.

561. Let us imagine Socrates reincarnated—this time in London. Let us fancy him plumped down on the Marylebone Road, where he is introduced to a professor of the R.A.M.

SOCRATES REDIVIVUS.—Pleased to meet you, sir. I have always taken an interest in the arts, especially in music. This I find has developed to an extent that I should have considered dangerous to the commonwealth. But I know I have much to learn. As a beginning, I know the shapes of your notes, and can see their bearing upon one of my favourite subjects—rhythm. Other things puzzle me. I hear people speaking about ‘intervals’ in music, and yesterday I heard two gentlemen who seemed to be musicians disputing about teaching singing ‘by interval.’ You will, I know, be kind enough to explain this to me. What is an interval in music?

R.A.M. PROF.—Oh, ’tis quite simple. It only means the distance between two notes.

SOCRATES.—Is that so? (*Taking paper and pencil from his pocket.*) Then if I write two notes like this , the distance between them will be an interval?

R.A.M.P.—Oh no! Interval refers to notes that are higher or lower than each other.

SOCRATES.—I see. Then if I place the notes this way , that would be an interval?

R.A.M.P.—No, my dear fellow; that’s not it at all. As a matter of fact the interval is not exactly between the notes but between the sounds.

SOCRATES.—Between the sounds. Why, of course; how stupid of me! Sounds follow each other, some very quickly and some quite slowly, and so we get longer and shorter intervals. I see that quite well. Thank you so—

R.A.M.P.—No, no! You’re on the wrong tack altogether. That has to do with time. There aren’t any intervals in time.

PSYCHOLOGY APPLIED TO MUSIC TEACHING

SOCRATES.—But I can *hear* intervals in time—sometimes quite a long interval; and sometimes the sounds come running after each other with scarcely——

R.A.M.P.—Stop, stop! You're all wrong really. (What a stupid old man this is!) Some sounds are *higher* than others (295-6). Listen (*sings two sounds an octave apart*).

SOCRATES.—I'm afraid I don't quite follow you. Let me see. Sounds are caused by vibrations?

R.A.M.P.—Certainly.

SOCRATES.—But you said interval meant distance, didn't you?

R.A.M.P.—Yes; distance between two sounds, up or down.

SOCRATES.—Sorry; but I can't reconcile these statements. Your first sound was caused by a certain number of vibrations?

R.A.M.P.—Yes; certainly.

SOCRATES.—And the other by twice that number?

R.A.M.P.—Of course.

SOCRATES.—Then sounds stand in certain relations to each other through their vibrations?

R.A.M.P.—Quite so.

SOCRATES.—Like colours?

R.A.M.P.—H'm—well—I don't know so much about colours. But why not?

SOCRATES.—Then what is the distance, or interval, between red and purple?

R.A.M.P.—Oh, come, my dear fellow, that's quite absurd, you know. Music is—well, you know—music's *quite different*, you know.

SOCRATES.—If that be so I may be wrong. I understand, then, that with regard to musical sounds there is *distance* between ratios.

R.A.M.P.—Ah, you've got me there. Anyhow, that's what we *call* an interval.

SOCRATES.—But I do like to get to the bottom of things, and I am but a learner. Perhaps you will think it over and

DIFFERENT KINDS OF METHOD

explain it to me some other time. I won't detain you now. Good-bye, and thank you so much.

R.A.M.P. (*alone*).—I wonder if there's anything in that argument of his? I must think it out in case I should meet him again. Why, it would mean that there aren't really any intervals at all! Absurd old Johnnie.

* * * * *

(*Afterthought*) Perhaps I'd better ask Corder about it.